Panel on Increasing Aerospace Technology Contributions to a National Innovation System

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Science, Technology, and Economic Policy Board
The National Academies

Conference on the Second Century of Flight: Challenges and Opportunities
NASA's Aerospace Technology Enterprise
June 11, 2003
What is the NIS?

An interconnected network of mechanisms for producing the scientific and technological advances that contribute to the Nation's well being

- Process as well as product
- Improvement as well as invention
What is the Utility of NIS Concept?

- Private sector focus
- Multiple influences
- Global influences
- Compare nations
- Changes over time
- Sectoral differences
U.S. Industrial Resurgence
Government-Industry Partnerships
Change: Industrial Reorganization and Resurgence

National R&D Funding, by source: 1953-2000

Billions of constant 1996 dollars


Total R&D
Industry
Federal
Other non-Federal
Change: Shift in the Federal R&D Portfolio

Millions of 1996 dollars

Fiscal year

All fields
Engineering, total
Physical Sciences, total
Life Sciences, total
Math/Computer Sciences, total
Environmental Sciences, total
Social Sciences, total
Psychology, total
Change: Declining Production of Domestic S&E Talent

Graduate Students in Engineering by Field, % Change 93-00

-50.00%
-40.00%
-30.00%
-20.00%
-10.00%
0.00%
10.00%
20.00%
30.00%

Engineering, total
Aerospace engineering
Agricultural engineering
Biomedical engineering
Chemical engineering
Civil engineering
Electrical engineering
Engineering science
Industrial/manufacturing eng.
Mechanical engineering
Metallurgical/materials eng.
Mining engineering
Nuclear engineering
Petroleum engineering
Engineering, n.e.c.
Change: Declining Production of Domestic S&E Talent

Bachelor’s Degrees Earned in Selected S&E Fields

Number of degrees

140,000
120,000
100,000
80,000
60,000
40,000
20,000
0


Social sciences
Biological and agricultural sciences
Engineering
Psychology
Physical and geosciences
Computer sciences
Mathematics

NOTE: Geosciences include earth, atmospheric, and ocean sciences.
Panel

Mark Myers, Wharton School

Lori Perine, Interpretech, Inc.

Roger Launius, National Air and Space Museum